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ANTI-FERROMAGNETICALLY  
COUPLED GRANULAR-CONTINUOUS  
MAGNETIC RECORDING MEDIA

ABSTRACT OF THE DISCLOSURE

An anti-ferromagnetically coupled, granular-continuous ("AFC-GC") magnetic recording medium having increased thermal stability, writability, and signal-to-medium noise ratio ("SMNR"), comprising a layer stack including, in sequence from a surface of a non-magnetic substrate:

- (a) a continuous ferromagnetic stabilizing layer;
- (b) a non-magnetic spacer layer; and
- (c) a granular ferromagnetic recording layer;

wherein:

(i) the continuous ferromagnetic stabilizing and granular ferromagnetic recording layers are anti-ferromagnetically coupled across the non-magnetic spacer layer, the amount of anti-ferromagnetic coupling preselected to ensure magnetic relaxation after writing;

(ii) lateral interactions in the granular, ferromagnetic recording layer are substantially completely eliminated or suppressed; and

(iii) the exchange coupling strength in the continuous, ferromagnetic stabilizing layer is preselected to be slightly larger than the strength of the anti-ferromagnetic coupling provided by the non-magnetic spacer layer to thereby enhance thermal stability of the recording bits.